

# Sobre la dinàmica del RTBP parabòlic

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## Abstract

We consider the motion of an infinitesimal mass under the gravitational influence of two equal masses (primaries) moving in two parabolic orbits, all of them in the same plane (planar parabolic problem). The flow of the system is described in terms of the final evolution of the solutions, forward and backward in time. The two main roles in the dynamics of the problem are the Hill's regions (which are non constant because the problem is like-gradient), and the invariant manifolds associated to the equilibrium points.

This model can be used to understand, at a basic level, the effect of a close encounter of two galaxies. Such a close encounter may cause a significant modification in the mass distribution. Taking into account just one particle within one galaxy, after the close encounter, the particle may jump to the other galaxy or escape. We study in the frame of the planar parabolic problem, the mechanisms that allow to explain that a particle escapes or is transferred from the neighborhood of one primary to the other (capture).

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